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Training teachers to use digital resources for the knowledge society

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Abstract

Knowledge society is a learning society with knowledge and competences evolving continuously. Teachers, as the most important asset in such a society, need to be life long learners. Technology should also be used to help teachers access, compose and manage their learning under various circumstances. This article presents the arguments for two succesful programmes that aimed at creating a coherent system that could lead to the formation of key competences in preschoolers for ensuring a succesful school start and for creating further a life long learning style. This involved the creation of an information and learning electronic community as an opportunity for teachers to form new professional competences for using the system of digital resources and services available to children, to share examples of good practices, to improve the collaboration between kindergardens, schools and families through joint educational programmes.

Keywords: teacher education; digital resources; early education; knowledge society.

1. Introduction

Teacher Education is in a process of change today in Europe reflecting the need to adapt research and training to meet the challenges of the global labour market, technological advances, new profiles and demands of the society. The term professional development is getting increasingly replaced by the broader and more significant term lifelong learning (Fenwick, 2001) as knowledge society is a learning society with knowledge and competences evolving continuously. Teachers being potentially the most important asset in the notion of a learning society need to be life long learners. In every day life, life long learners try to solve problems, share ideas and understand

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situations. Hence, for making contextualized life long learning happen in practice, training in reflection and problem solving is needed. Technology should also be used to help learners access, compose and manage their learning under various circumstances (Dimakopoulos & Magoulas, 2009). Hence, ICT integration and scope for problem solving are needed during teacher education.

Subscribing to this objectives, the University of Bucharest, through the Department of Teacher Education, paticipated to two strategic projects, 'Key competences through virtual games at pre-school level – didactic resources for forming basic key competences in preschoolers' (ID 63158) and 'With children for a quality school start' (ID 63126), which proposed the creation of a unitary system of building learning digital resources through games for responding to the needs of the target groups. The main objective of the projects was to create a coherent system that could lead to the formation of key competences in preschoolers for ensuring a succesful school start and for creating further a life long learning style. This involved the creation of an information and learning electronic community as an opportunity for teachers to form new professional competences for using the system of digital resources and services available to children, to share examples of good practices, to improve the collaboration between kindergardens, schools and families through joint educational programmes.

The main argument was the fact that a knowledge society is a "networked" society and requires the ability to continually advance knowledge collaboratively (Tan et al., 2006). Teachers need to know how to structure interactions among students and collaborate with other teachers and parents (Shulman, 1992). This requires trainees of TE to have collaborative learning experiences.

ICT integration and collaborative learning can be intertwined. This is because new collaborative technologies enable active production of shared knowledge (Graboswki et al.,2009). There are a number of computer applications that facilitate collaborative knowledge construction (Dias, 1999; Jarvela et al., 2001) and this potential has to be tapped by teacher educators. Web 2.0 technologies like wikis, blogs and podcasts if effectively deployed at teacher education institutions could also enhance learning experiences, and deepen levels of learners' engagement and collaboration as they can support conversational interaction, feedback and social networking (McLoughlin et al., 2007). There is therefore, an emerging need to redefine pedagogy in teacher education institutions and harness web 2.0 technologies to promote collaborative learning (Safran et al., 2007).

2. The conceptual framework of the projects

Knowledge society requires abilities to reflect, act with autonomy but work collaboratively for creating knowledge and be lifelong learners. In response to these demands of the knowledge society and the teaching profession, teachers need to be prepared suitably. Recent studies indicate a growing focus on teachers using ICT with children, or on their own, as a tool to support and scaffold children's early childhood education experiences, to investigate and build learning experiences from children's interests, or to strengthen relationships between children, practitioners, and families. Those kinds of interactions, occurred in the context of ICT use, can provide a context for collaboration, cooperation, and positive learning experiences among children or between children and adults. However, this will not necessarily happen on its own. Thus, one of the main questions in current education should definitely be: How can early childhood and primary education teachers respond to changes and create opportunities for learning with ICT?

Maximising the learning benefits of ICT requires a responsive, reflective pedagogy which values pleasure and engagement as well as operational skills. We strongly believe that professional development can help practitioners to find ways of enhancing the value of encounters with ICT whilst balancing child-initiated and adult-led activities. In view of nowadays teachers' need to integrate ICT into their daily teaching practice, universities might even consider making ICT a compulsory component of initial teacher education programmes and to seek to improve the quality and consistency of ICT training across institutions.

In this context, early childhood and primary education should represent a milestone for children's various encounters with ICT which, in contrast with the critical views expressed by some, hold many potential benefits for young pupils, advantages that can, when used appropriately and responsibly, enhance four key areas of learning (Siraj-Blatchford and Siraj-Blatchford, 2006):

- **communication and collaboration:** trained in problem-solving activities, drawings, blocks, digital toys, games that run as applications on a PC's desktop;

- **creativity:** well-designed digital tools that provide children the opportunity to use previously acquired patterns of thinking in new learning contexts. Questions like "how it would have been if ...?" encourage decision making and finding alternative solutions;
- **dramatizations and role playing:** there is an enormous potential for integrating ICT in the playground/play of children; thus, there have already been successfully trialled various educational software that simulate a travel agency, a store, a medical office, etc.;
- **learning to learn:** computer resources can support the development of meta-cognitive skills in children, particularly those aiming at communication skills training and the ability to verbalize their emotions, thoughts, to share it with others**.**

Practitioners can and must act as a decisive factor in this matter, considering that their rich repertoire of pedagogical actions enables them to support pupils learning through the selective use of particular software applications and different forms of ICT, in ways that are compatible with the dominant role of play in young children's lives. Any kindergarten or primary school shoud therefore provide up-to-date equipment, on-going support – not only technical, but also pedagogical guidance – for its teachers and easy access to the online resources and networks available in Europe, that actually represent a new way for teachers to engage in professional development, as members of the European teaching community.

3. ICT and Early Education

We need to reflect further on an early childhood education practitioner's quotation that manages to get to the core issue here:

The biggest challenge is to get enough time to develop personnel expertise. It is important to be able to do that... It is also important to highlight pedagogy and didactics, focus on what we want kids to learn from this, and why and how (Kalaš, 2010).

The issues of how ICT can enhance the learning environment in ECE are also explored in literature (New Zealand Council for Educational Research, 2004). Research suggests that the value ICT can add to young children's learning environments depends on the choices practitioners make about which tools to select, and when and how to use these; and their understandings about how these tools can support children's learning, development, and play.

In order to do that we need to be more specific about some characteristics of child development and the role of early education. In understanding children, we often find ourselves overwhelmed by the way they perceive reality (Jacques, 2008). The importance of games at an early stage of life is today an indisputable truth. The game has a universal characteristic, giving children involved into this learning process an opportunity to manifest adversarial dispute, an effort to overcome challenges, and also enhances their potential, taking into account their developmental stages (Neacsu et al., 2010).

In the digital era, children prefer receiving quick information from multiple media sources, and as a consequence their brains are accustomed to process information in term of images, sounds and only then texts. These children are drawn to activities in which they can interact simultaneously with more than one person, being accustomed to accesses virtual environments and obtain information whenever necessary, to immediately receive appreciation for what they have learned, and also they want to learn only what they considers relevant, useful or funny. Adult encouraging child exploration and play is extremely important, but when having educational purposes, playing needs to be guided by adult (Rogers, 2011).

In an educational setting, the teacher used to have control over content, game rules with a pedagogical purpose. Nowadays, with digital resources, control is hold by the providers of developing software or multi-purpose digital tools. We believe that this trend is a consequence of a continuously changing era that it is based on exchanging information, regarding activities, interests, in a way that can allow individuals to minimize their time spent on dealing with everyday problems.

The advantages of using digital tools in education starting with an early stage (Nutbrown, 2011) comprise:

- providing a new learning experience, being aware of the novelty of the learning situation;
- stimulating logical-mathematical intelligence, spatial, kinesthetic, musical, interpersonal, intrapersonal, and also emotional intelligence;
- offering an educational reality, closely related with educational multiple intelligences theory;

- offering multiple opportunities for teachers in order to support the design / the organization / the assessment of the lesson;
- in connection to the learning content and knowledge areas, game can be viewed as an interdisciplinary / integrated activity;
- teachers being able to transpose into games social aspects and events that are familiar to children, events that make part of their life.

The disadvantages of excessive and inappropriate usage of these digital tools and games in the learning process can have undesired effects regarding children's health (bad back posture, spine problems) or children's social development such as lack of real/direct social interaction and isolation in their own world that can eventually lead them to aggressiveness and also school failure.

From a psychological point of view, the pleasure of playing with others, the experience of shared fun and humor, are axes forming positive trends in relation to kindergarten (and later, school), family, teachers and other children. Interactional component has its base in forming secure attachments type up to the age of two (Bowlby and Ainsworth in Birch, 2000). Pro-social behaviors comes into tolerance tendencies toward aversive factors, consistent within the formation of preconvention morality level (Kohlberg in Bochis, 2004). A child treated with kindness and respect and see others show beloving behavior is more likely to develop goodness and morality (Desmond and Kimberly, 2013).

Therefore, preschool and primary school teacher training has to be focused on new relationship between general growth and development of the brain and learning/ teaching activities, as well as dedicated to aspects of cognitive development not only through math or sciences, but also through physical activities, dance and arts, complex motor skills that has to be related to structure and functional aspects of the brain (as cerebral lateralization).

The exposure to the information society conducts the individual to higher and complex knowledge structure that brings the child`s response to an apparent cognitive evolution jump that is not sustained by the operations that information is put through. Teachers are more likely to insist on cognitive development than the emotional one and there is a need of a new integrative paradigm that has to include a shift to personal and personality construction. The emotional base of child's identity and in relationship to other children and self-confidence in succeeding and being valued and accepted as a family and community being has to be considered by the educational paradigm.

4. Conclusions

Teacher education has to get more oriented towards community and building a strong relationship not only between children, but their families and those to the school and society. A strong point of the teacher education has to be the development of teachers'personality, towards attitudes and personality profiles as completing the very methodics and professional knowledge, skills and abilities.

If teachers are expected to possess certain competencies, it has to be ensured that they are prepared for it especially through pre-service education. We can promote an educational system with highly skilled teachers, capable of generating ingenuity and creativity in children, provided they experience creativity and flexibility and are themselves developed as knowledge society professionals (Hargreaves, 2003).

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